FIG.1

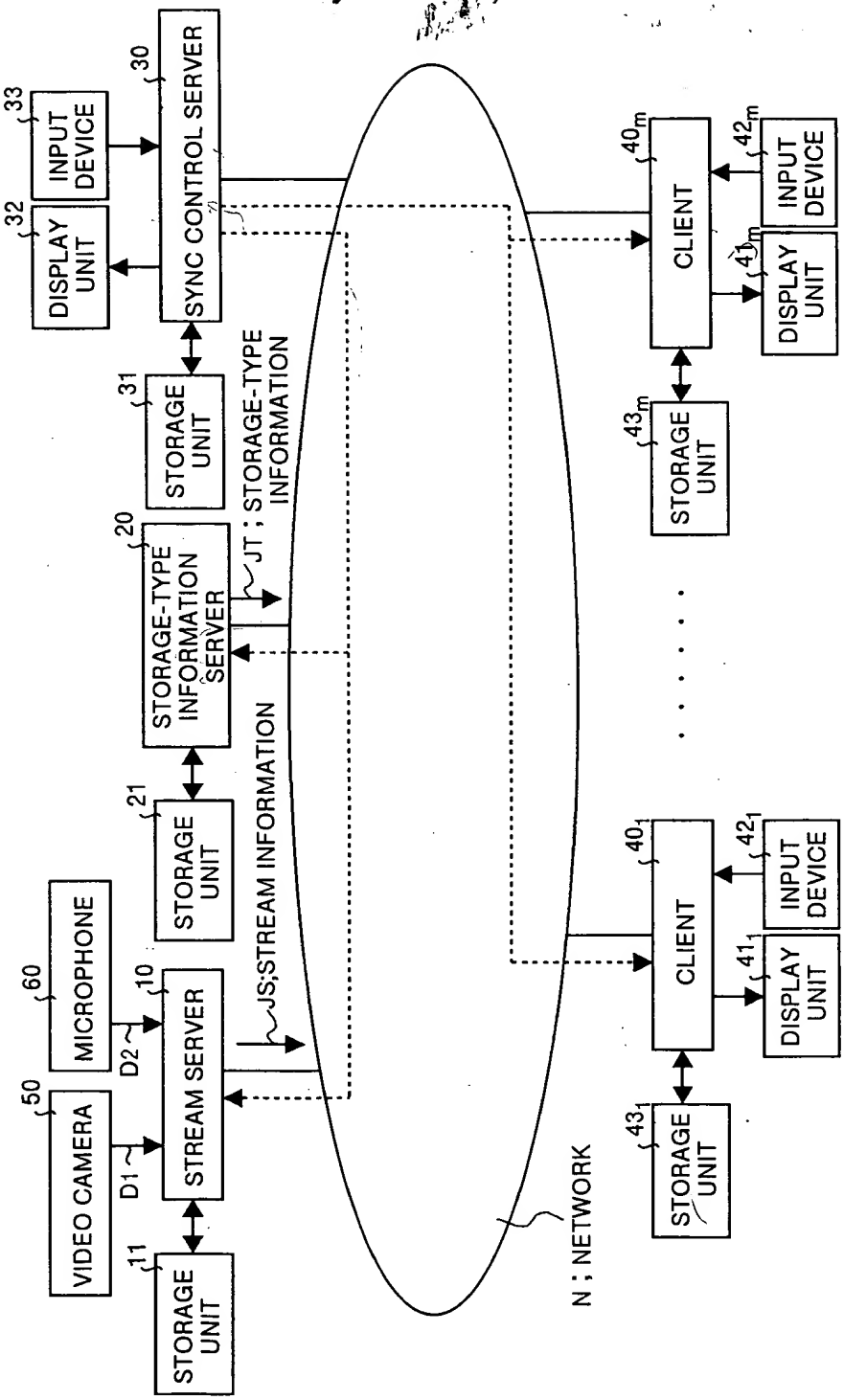
30
SYNC CONTROL SERVER
33
INPUT DEVICE
32
DISPLAY UNIT
31
STORAGE UNIT
20
STORAGE-TYPE INFORMATION SERVER
JT ; STORAGE-TYPE INFORMATION
21
STORAGE UNIT
JS;STREAM INFORMATION
60
MICROPHONE
D2
10
STREAM SERVER
50
VIDEO CAMERA
D1
11
STORAGE UNIT
N ; NETWORK
40m
CLIENT
42m
INPUT DEVICE
41m
DISPLAY UNIT
43m
STORAGE UNIT
40₁
CLIENT
42₁
INPUT DEVICE
41₁
DISPLAY UNIT
43₁
STORAGE UNIT

FIG.2

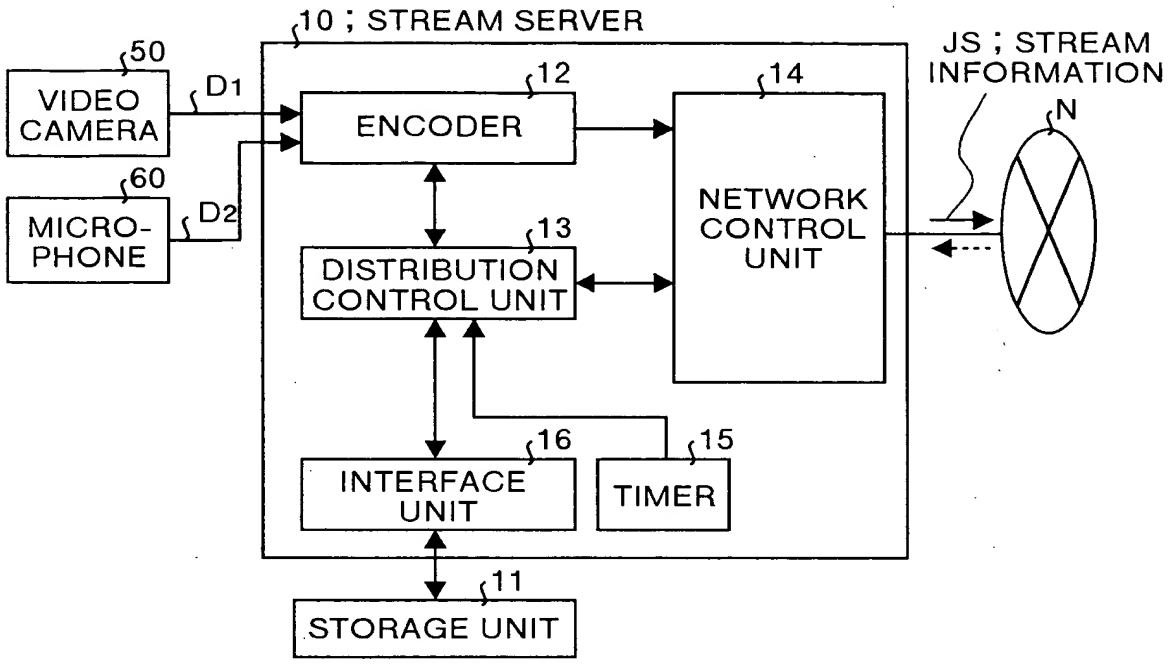
10 ; STREAM SERVER
50
VIDEO CAMERA
D1
60
MICRO-PHONE
D2
12
ENCODER
13
DISTRIBUTION CONTROL UNIT
14
NETWORK CONTROL UNIT
16
INTERFACE UNIT
15
TIMER
11
STORAGE UNIT
JS ; STREAM INFORMATION
N

FIG.3

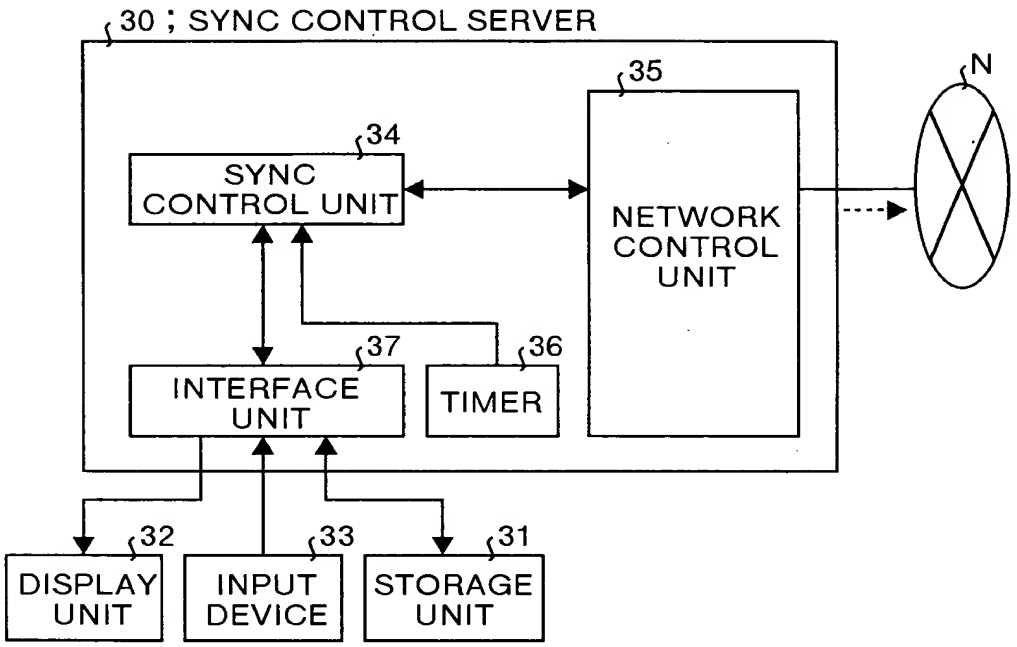
30 ; SYNC CONTROL SERVER
35
N
34
SYNC CONTROL UNIT
NETWORK CONTROL UNIT
37
36
INTERFACE UNIT
TIMER
32
33
31
DISPLAY UNIT
INPUT DEVICE
STORAGE UNIT

FIG.4A

J1 ; SERVER INFORMATION

| SERVER NAME | SERVER IP ADDRESS | MULTICAST ADDRESS | CONTENTS TYPE | CONTENTS NAME |
|---|---|---|---|---|
| STREAM SERVER | 11.2.3.100 | 239.0.10.100 | STREAM TYPE | CONTENTS A |
| STORAGE-TYPE INFORMATION SEVER | 11.2.3.199 | 239.0.10.199 | STORAGE TYPE | CONTENTS B |

FIG.4B

CLIENT INFORMATION

| CLIENT NAME | CLIENT IP ADDRESS |
|---|---|
| CLIENT 1 | 22.33.44.100 |
| ⋮ | ⋮ |
| CLIENT m | 22.33.44.199 |

FIG.4C

J3 ; SYNC REPRODUCTION INFORMATION

| STREAM INFORMATION JS | | STORAGE-TYPE INFORMATION JT | | |
|---|---|---|---|---|
| SERVER NAME | CONTENTS NAME | SERVER NAME | CONTENTS NAME | SYNC TIME |
| STREAM SERVER | CONTENTS A | STORAGE-TYPE INFORMATION SERVER | CONTENTS B | 05'20 |

FIG.5

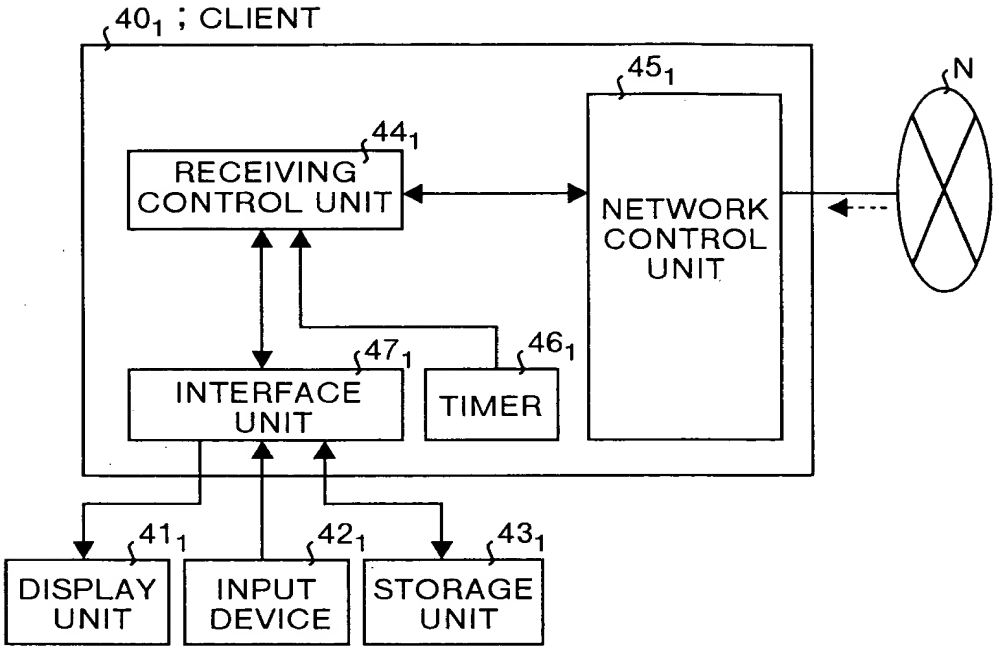


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FIG.6

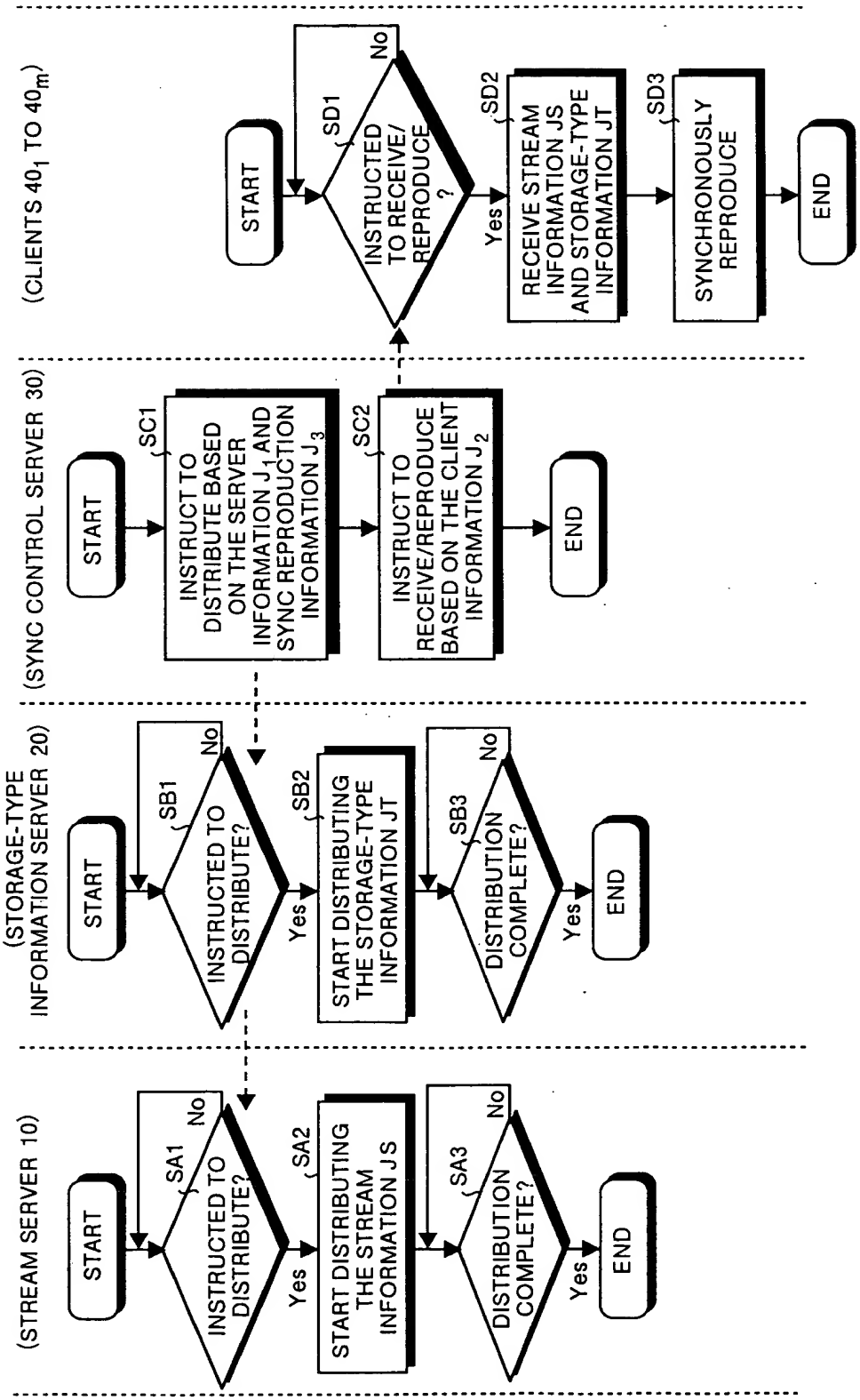

(STREAM SERVER 10)
START
SA1
INSTRUCTED TO DISTRIBUTE?
No
Yes
SA2
START DISTRIBUTING THE STREAM INFORMATION JS
SA3
DISTRIBUTION COMPLETE?
No
Yes
END
(STORAGE-TYPE INFORMATION SERVER 20)
START
SB1
INSTRUCTED TO DISTRIBUTE?
No
Yes
SB2
START DISTRIBUTING THE STORAGE-TYPE INFORMATION JT
SB3
DISTRIBUTION COMPLETE?
No
Yes
END
(SYNC CONTROL SERVER 30)
START
SC1
INSTRUCT TO DISTRIBUTE BASED ON THE SERVER INFORMATION $J_1$ AND SYNC REPRODUCTION INFORMATION $J_3$
SC2
INSTRUCT TO RECEIVE/REPRODUCE BASED ON THE CLIENT INFORMATION $J_2$
END
(CLIENTS $40_1$ TO $40_m$)
START
SD1
INSTRUCTED TO RECEIVE/ REPRODUCE ?
No
Yes
SD2
RECEIVE STREAM INFORMATION JS AND STORAGE-TYPE INFORMATION JT
SD3
SYNCHRONOUSLY REPRODUCE
END

FIG.7

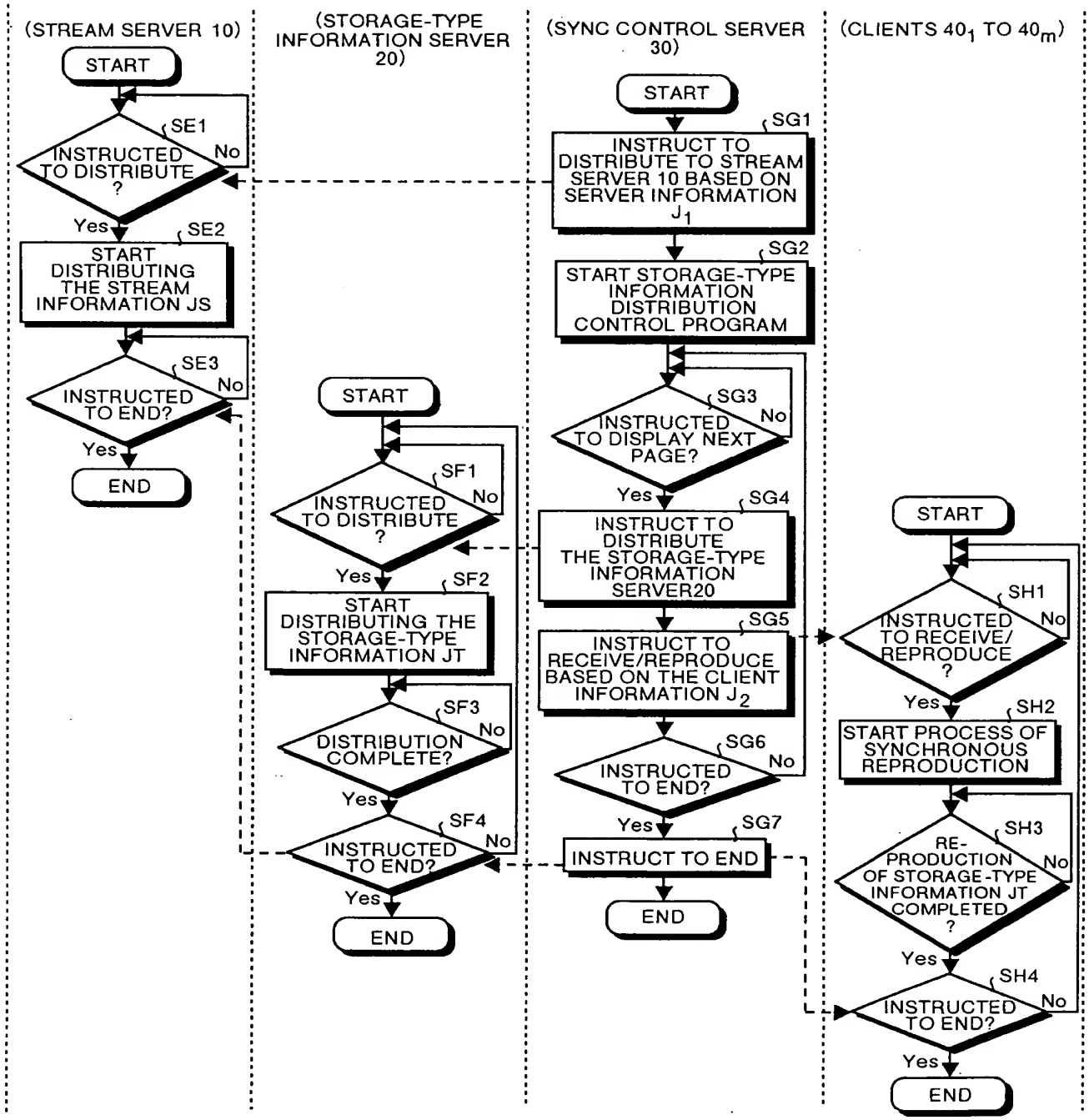

(STREAM SERVER 10)
(STORAGE-TYPE INFORMATION SERVER 20)
(SYNC CONTROL SERVER 30)
(CLIENTS $40_1$ TO $40_m$)
START
SE1
INSTRUCTED TO DISTRIBUTE ?
No
Yes
SE2
START DISTRIBUTING THE STREAM INFORMATION JS
SE3
INSTRUCTED TO END?
No
Yes
END
START
SF1
INSTRUCTED TO DISTRIBUTE ?
No
Yes
SF2
START DISTRIBUTING THE STORAGE-TYPE INFORMATION JT
SF3
DISTRIBUTION COMPLETE?
No
Yes
SF4
INSTRUCTED TO END?
No
Yes
END
START
SG1
INSTRUCT TO DISTRIBUTE TO STREAM SERVER 10 BASED ON SERVER INFORMATION $J_1$
SG2
START STORAGE-TYPE INFORMATION DISTRIBUTION CONTROL PROGRAM
SG3
INSTRUCTED TO DISPLAY NEXT PAGE?
No
Yes
SG4
INSTRUCT TO DISTRIBUTE THE STORAGE-TYPE INFORMATION SERVER20
SG5
INSTRUCT TO RECEIVE/REPRODUCE BASED ON THE CLIENT INFORMATION $J_2$
SG6
INSTRUCTED TO END?
No
Yes
SG7
INSTRUCT TO END
END
START
SH1
INSTRUCTED TO RECEIVE/ REPRODUCE ?
No
Yes
SH2
START PROCESS OF SYNCHRONOUS REPRODUCTION
SH3
RE-PRODUCTION OF STORAGE-TYPE INFORMATION JT COMPLETED ?
No
Yes
SH4
INSTRUCTED TO END?
No
Yes
END

FIG.8

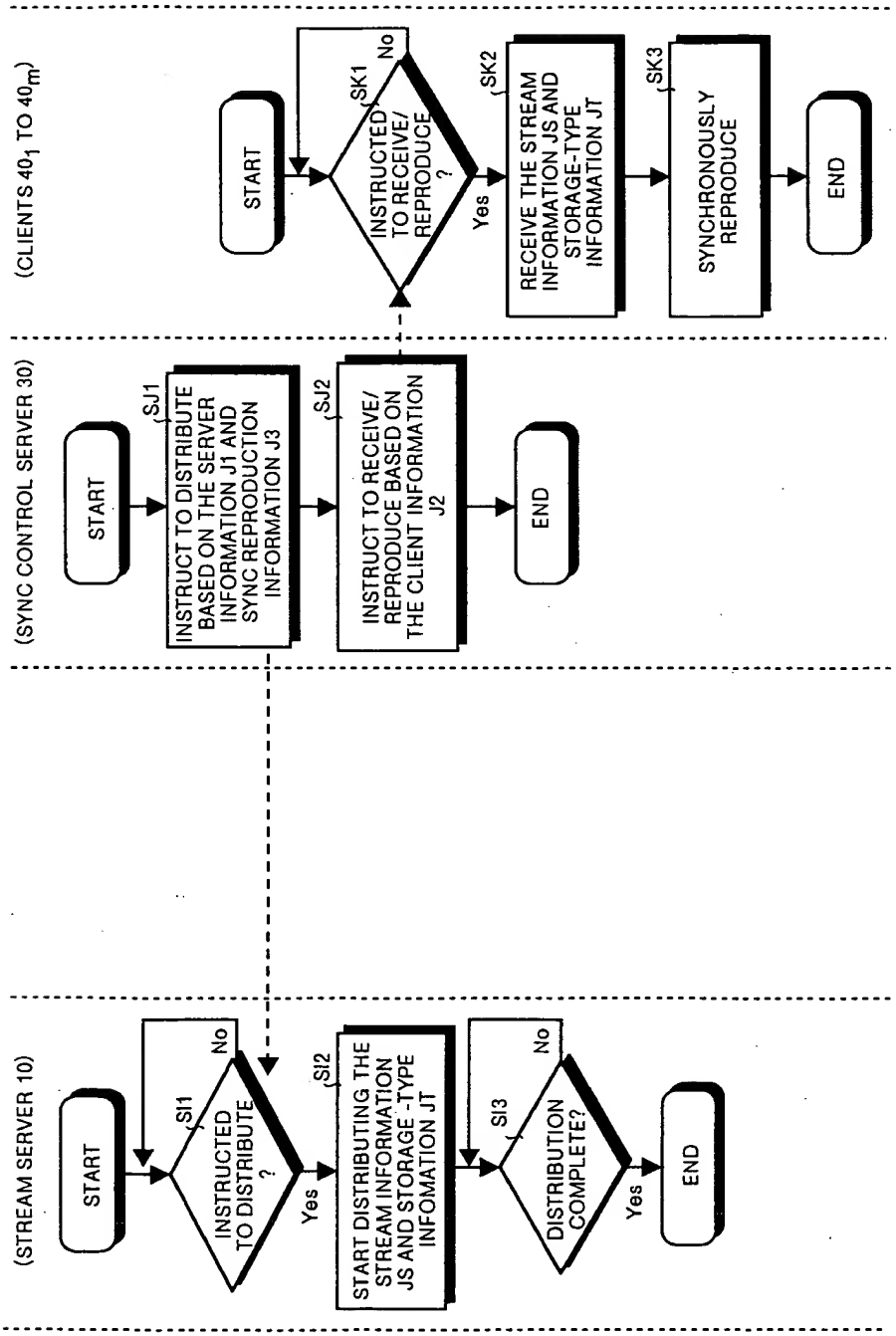
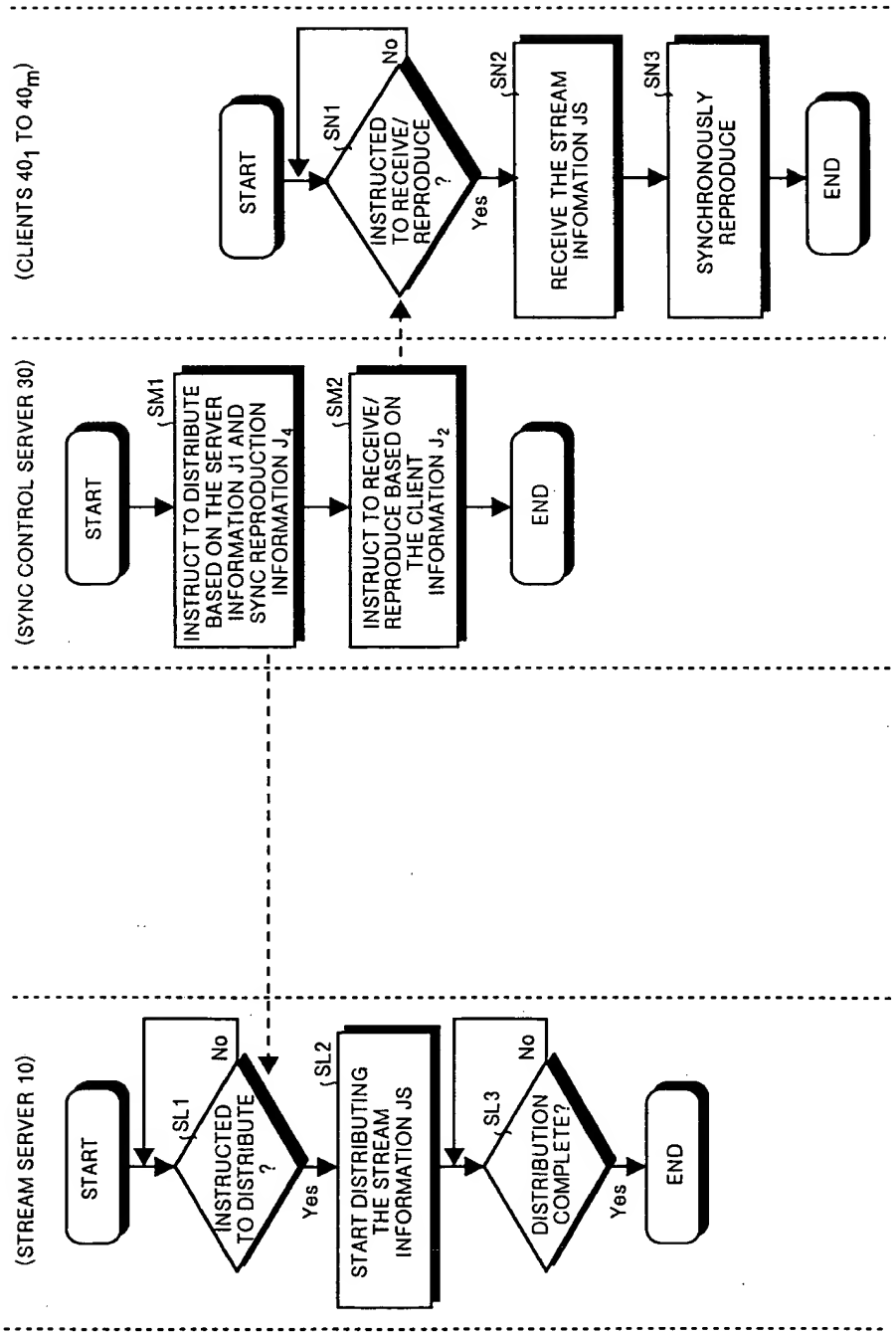

(STREAM SERVER 10)
START
SI1
INSTRUCTED TO DISTRIBUTE ?
No
Yes
SI2
START DISTRIBUTING THE STREAM INFORMATION JS AND STORAGE -TYPE INFOMATION JT
SI3
DISTRIBUTION COMPLETE?
No
Yes
END
(SYNC CONTROL SERVER 30)
START
SJ1
INSTRUCT TO DISTRIBUTE BASED ON THE SERVER INFORMATION J1 AND SYNC REPRODUCTION INFORMATION J3
SJ2
INSTRUCT TO RECEIVE/ REPRODUCE BASED ON THE CLIENT INFORMATION J2
END
(CLIENTS $40_1$ TO $40_m$)
START
SK1
INSTRUCTED TO RECEIVE/ REPRODUCE ?
No
Yes
SK2
RECEIVE THE STREAM INFORMATION JS AND STORAGE-TYPE INFORMATION JT
SK3
SYNCHRONOUSLY REPRODUCE
END

FIG.9


(STREAM SERVER 10)
START
SL1
INSTRUCTED TO DISTRIBUTE ?
No
Yes
SL2
START DISTRIBUTING THE STREAM INFORMATION JS
SL3
DISTRIBUTION COMPLETE?
No
Yes
END
(SYNC CONTROL SERVER 30)
START
SM1
INSTRUCT TO DISTRIBUTE BASED ON THE SERVER INFORMATION J1 AND SYNC REPRODUCTION INFORMATION $J_4$
SM2
INSTRUCT TO RECEIVE/ REPRODUCE BASED ON THE CLIENT INFORMATION $J_2$
END
(CLIENTS $40_1$ TO $40_m$)
START
SN1
INSTRUCTED TO RECEIVE/ REPRODUCE ?
No
Yes
SN2
RECEIVE THE STREAM INFOMATION JS
SN3
SYNCHRONOUSLY REPRODUCE
END

# FIG.10

$J_4$ ; SYNC REPRODUCTION INFORMATION

| STREAM INFORMATION JS | | STORAGE-TYPE INFORMATION JT | | |
|---|---|---|---|---|
| SERVER NAME | CONTENTS NAME | CLIENT NAME | CONTENTS NAME | SYNC TIME |
| STREAM SERVER | CONTENTS A | CLIENT 1 TO m | CONTENTS B | 05'20 |

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FIG.11

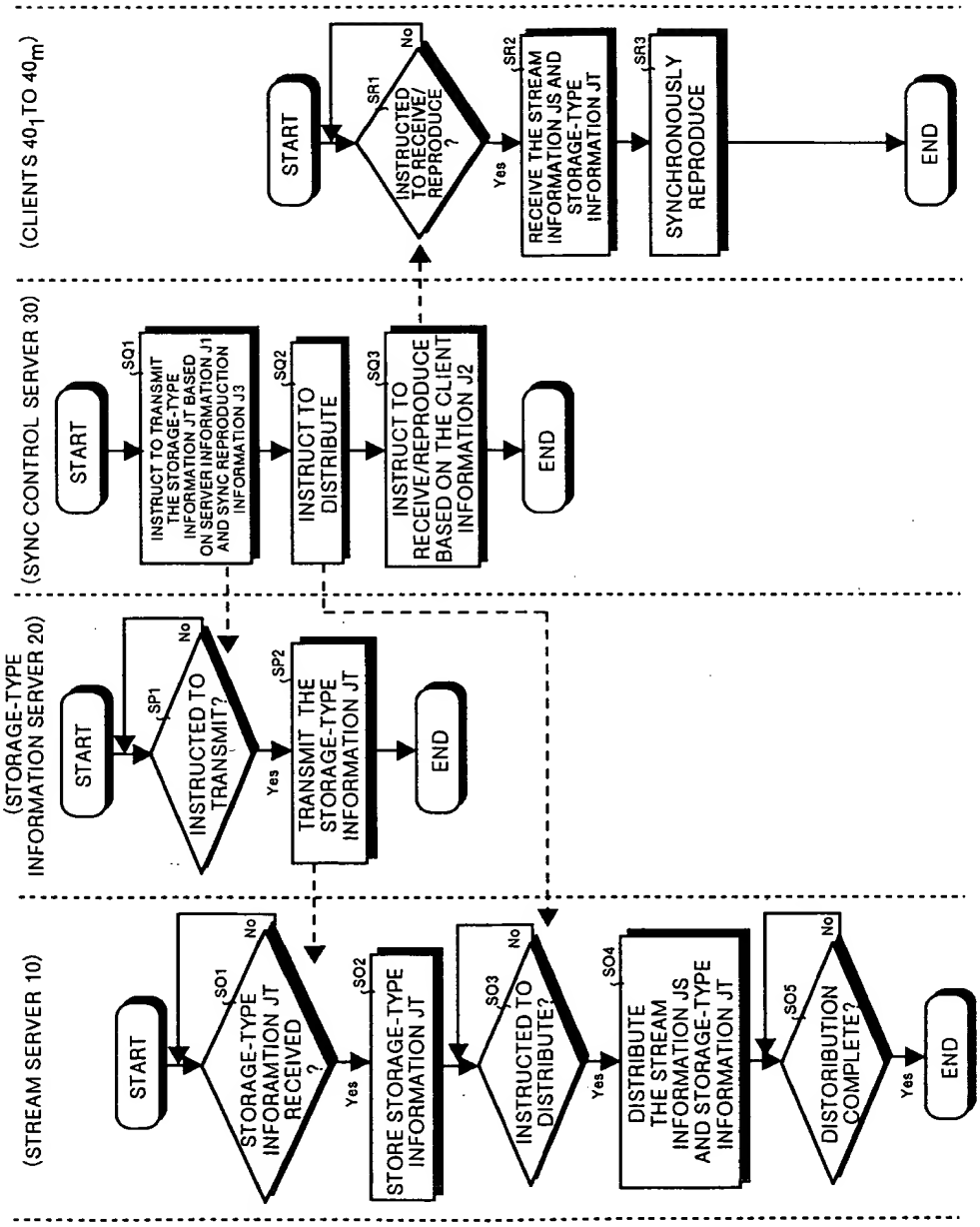

(STREAM SERVER 10)
(STORAGE-TYPE INFORMATION SERVER 20)
(SYNC CONTROL SERVER 30)
(CLIENTS 40$_1$ TO 40$_m$)
START
STORAGE-TYPE INFORAMTION JT RECEIVED ?
SO1
No
Yes
STORE STORAGE-TYPE INFORMATION JT
SO2
INSTRUCTED TO DISTRIBUTE?
SO3
DISTRIBUTE THE STREAM INFORMATION JS AND STORAGE-TYPE INFORMATION JT
SO4
DISTORIBUTION COMPLETE?
SO5
END
START
INSTRUCTED TO TRANSMIT?
SP1
TRANSMIT THE STORAGE-TYPE INFORMATION JT
SP2
END
START
INSTRUCT TO TRANSMIT THE STORAGE-TYPE INFORMATION JT BASED ON SERVER INFORMATION J1 AND SYNC REPRODUCTION INFORMATION J3
SQ1
INSTRUCT TO DISTRIBUTE
SQ2
INSTRUCT TO RECEIVE/REPRODUCE BASED ON THE CLIENT INFORMATION J2
SQ3
END
START
INSTRUCTED TO RECEIVE/ REPRODUCE ?
SR1
RECEIVE THE STREAM INFORMATION JS AND STORAGE-TYPE INFORMATION JT
SR2
SYNCHRONOUSLY REPRODUCE
SR3
END

FIG.12

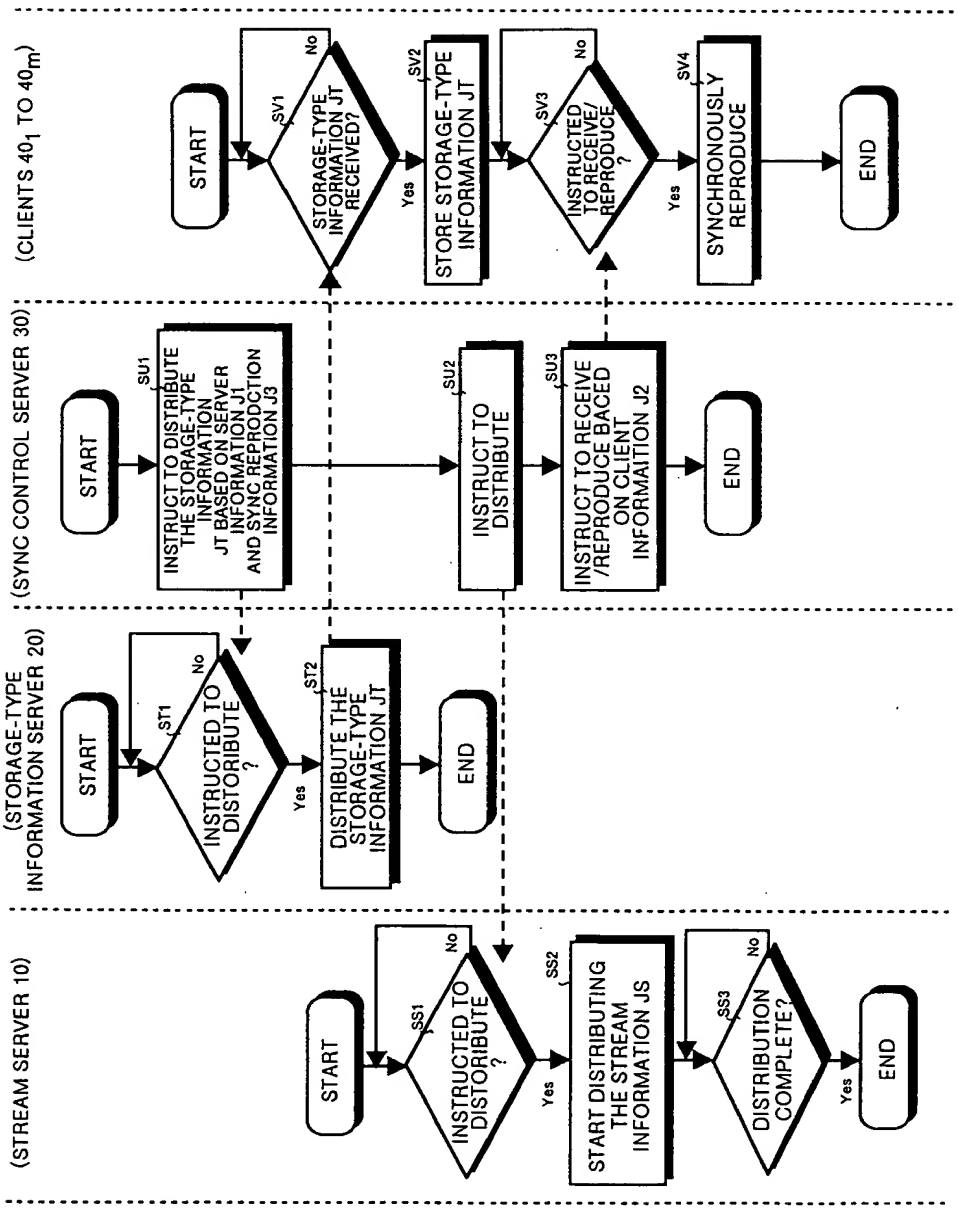

(STREAM SERVER 10)
(STORAGE-TYPE INFORMATION SERVER 20)
(SYNC CONTROL SERVER 30)
(CLIENTS $40_1$ TO $40_m$)
START
INSTRUCTED TO DISTORIBUTE ?
No
Yes
SS1
SS2
SS3
START DISTRIBUTING THE STREAM INFORMATION JS
DISTRIBUTION COMPLETE?
END
ST1
ST2
DISTRIBUTE THE STORAGE-TYPE INFORMATION JT
SU1
INSTRUCT TO DISTRIBUTE THE STORAGE-TYPE INFORMATION JT BASED ON SERVER INFORMATION J1 AND SYNC REPRODUCTION INFORMATION J3
SU2
INSTRUCT TO DISTRIBUTE
SU3
INSTRUCT TO RECEIVE /REPRODUCE BACED ON CLIENT INFORMAITION J2
SV1
STORAGE-TYPE INFORMATION JT RECEIVED?
SV2
STORE STORAGE-TYPE INFORMATION JT
SV3
INSTRUCTED TO RECEIVE/ REPRODUCE ?
SV4
SYNCHRONOUSLY REPRODUCE

FIG.13

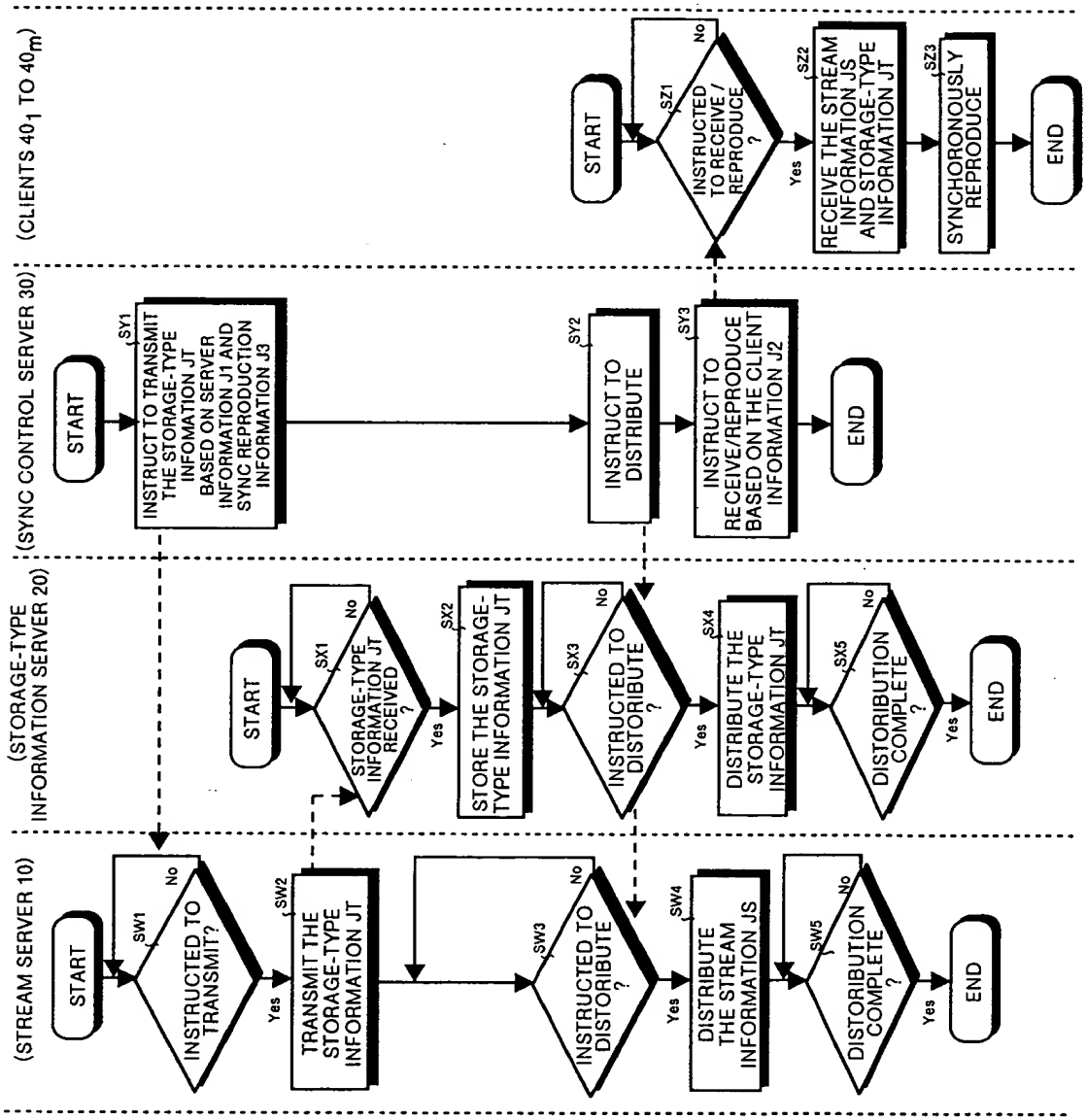
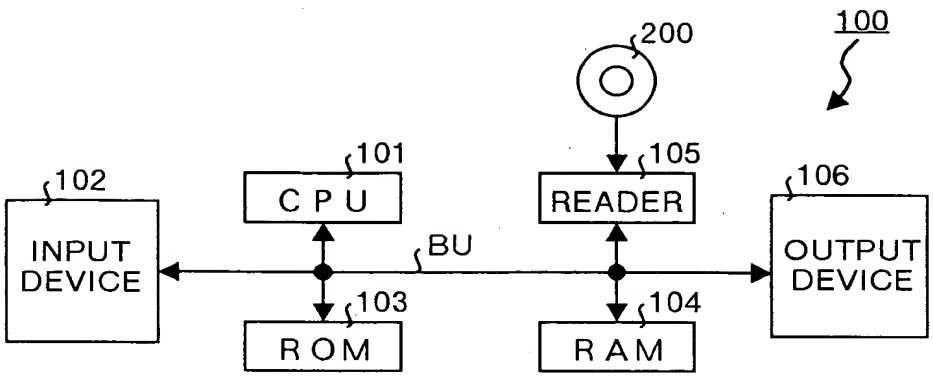

(STREAM SERVER 10)
(STORAGE-TYPE INFORMATION SERVER 20)
(SYNC CONTROL SERVER 30)
(CLIENTS $40_1$ TO $40_m$)
START
INSTRUCTED TO TRANSMIT?
SW1
No
Yes
TRANSMIT THE STORAGE-TYPE INFORMATION JT
SW2
INSTRUCTED TO DISTORIBUTE ?
SW3
DISTRIBUTE THE STREAM INFORMATION JS
SW4
DISTORIBUTION COMPLETE ?
SW5
END
START
STORAGE-TYPE INFORMATION JT RECEIVED ?
SX1
STORE THE STORAGE-TYPE INFORMATION JT
SX2
INSTRUCTED TO DISTORIBUTE ?
SX3
DISTRIBUTE THE STORAGE-TYPE INFORMATION JT
SX4
DISTORIBUTION COMPLETE ?
SX5
END
START
INSTRUCT TO TRANSMIT THE STORAGE-TYPE INFOMATION JT BASED ON SERVER INFORMATION J1 AND SYNC REPRODUCTION INFORMATION J3
SY1
INSTRUCT TO DISTRIBUTE
SY2
INSTRUCT TO RECEIVE/REPRODUCE BASED ON THE CLIENT INFORMATION J2
SY3
END
START
INSTRUCTED TO RECEIVE / REPRODUCE ?
SZ1
RECEIVE THE STREAM INFORMATION JS AND STORAGE-TYPE INFORMATION JT
SZ2
SYNCHORONOUSLY REPRODUCE
SZ3
END

FIG.14

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